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UNIVERSITY OF ALBERTA

Social-Communicative Interactions of Developmentally Delayed Preschool Children in Integrated Settings

by

Mary A. Reynolds

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A Thesis Submitted to the Faculty of Graduate Studies and Research in Partial Fulfillment of the Requirements for the Degree of Master of Science

in

Speech Language Pathology

Department of Speech Pathology and Audiology

Edmonton, Alberta

Fall, 1995

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The undersigned certify that they have read, and recommended to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled *Social-Communicative Interactions of Developmentally Delayed Preschool Children in Integrated Settings* submitted by Mary A. Reynolds in partial fulfillment of the requirements for the degree of Master of Science in Speech Language Pathology.

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Date: 14 September 1995

Abstract

The social-communicative interactions of six preschool children with developmental delays were investigated. These children were enrolled in a reverse integrated preschool program and concurrently attended a community mainstreamed daycare program. Rates of initiation and responding, proportion of appropriate responses to initiations, and effect of using an attention getting device for subjects and their communicative partners during free play were compared between the two settings. Results indicated no significant group differences between the two settings for rates of initiation, responding, or reciprocal exchanges, nor for proportion of appropriate responses. Overall, rates of initiations and responding were extremely low. Results for both settings indicated a significant difference between initiations with an attention getting device resulting in an appropriate response and initiations without an attention getting device resulting in an appropriate response. Subjects were much more successful in obtaining an appropriate response and in responding appropriately when an attention getting device was used.

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CHAPTER 1

Introduction

To acquire language adequately, children must participate in active social-communication exchanges with their communicative partners (Garvey, 1984; Gallagher, 1993). The partner of primary focus has been the adult caregiver (MacDonald, Gillette, & Hutchinson, 1989) and more recently the child's peers (Guralnick, 1992). The ability to communicate with other children for social purposes develops quickly during the preschool years (Garvey, 1984). Relatively little is known however, about the interactions that occur between children with disabilities and their typically developing peers (Guralnick, 1986).

The integrative nature of processes associated with children's peer relationships is highlighted by the close association between social and communicative skills (Guralnick, 1992; Gallagher & Prutting, 1983; Hadley & Rice, 1991; Rice, 1993; Rice, Sell, and Hadley, 1991; Prutting, 1982). Impaired social skills, of which communication tends to be a contributing factor, is a major defining characteristic of children with disabilities (Strain & Kohler, 1988). Future developmental outcomes for these children may depend, in part, on their social-communicative skilfulness with peers (Guralnick, 1986; Jenkins, Odom, & Speltz, 1989). Currently, there is a significant need for systematic analysis of the key social-communicative strategies necessary to optimize interactions between disabled children and their nondisabled peers, as well as the need to consider the settings in which social-communicative interactions occur (Ostrosky, Kaiser, & Odom, 1993).

Integrating young children with disabilities and children without disabilities in the same educational setting has emerged as one of the most important and complex practices in the past decade. The process of integration affects and is affected by multiple factors at many different levels (Guralnick, 1993). Peck, Odom, & Bricker (1993) have summarized the issues best by stating that "the adaptation and development of children in

integrated settings is influenced most directly by the nature and extent of the social and communicative interactions taking place in those settings on a daily basis" (p.1).

From past research it is known that developmentally delayed preschool children are at risk for the development of peer interactions and thus at risk for the benefits to be gained from such interactions. Engaging in reciprocal interactions requires, at least the social-communicative ability and skill involved in initiating a conversation and responding to the initiations of others.

The rationale for this study evolved from a review of the literature on the development of social-communicative competence in young children, the importance of peer interactions on this development and how integration might affect these relationships. The principle of normalization has resulted in the widespread practice of providing education within the least restrictive environment for children with disabilities. This has led to the development of a plethora of programs with varying *types* of integration.

This study sought to analyze the social-communicative interactions of a select group of young children with disabilities with adult and child communicative partners. These preschool children, exhibiting moderate-severe developmental delays, attended two types of integrated programs concurrently. This study addressed questions concerning group differences in rate and proportion measures of initiations and responses between a reversed and mainstreamed integrated setting. Secondly, the effect of attention getting devices on success of initiations was investigated. Attention getting devices are considered to be important to successful communication by developmentally delayed children. Of additional interest here was the responsiveness of developmentally delayed children to attention getting devices.

CHAPTER 2

Review of the Literature

The following review of the literature is organized into four areas addressing the development of social-communicative competence in young children, the development and importance of peer interactions, a framework for social-communicative peer interactions, and principles of integration. Within these general areas the implications for children with disabilities will be discussed.

Social-Communicative Competence

The influence of the study of pragmatics has led to an increased awareness of the social role of language (Gallagher, 1991). How children use their communication in social contexts to initiate and maintain social interactions (Bates, 1976) is the basis of the study of pragmatics. Gallagher (1991) states that we have been slow to deal with language disorders in social-interactional terms, despite the fact that language is the primary means by which we make interpersonal contact, socialize our children, and regulate our interactions. Effective social interactions are dependent, in part, upon the child's ability to communicate functionally with others. When investigating children's conversations, one must regard language as a social behaviour, and conversely, social competence must be considered in the context of language skills (Gallagher, 1993). Odom, McConnell, & McEvoy (1992) have observed that the process of examining social competence appears similar to the measurement of pragmatic language dimensions in children. Despite this, little attention has been directed towards the systematic observation of social-communicative goals of young children with disabilities. Guralnick (1986) states that to understand peer related social development of children, we must integrate our knowledge of developmental pragmatics, child sociolinguistics, and social-communicative competence.

There is a lack of consensus as to the definition of social competence in the literature. Researchers have conceptualized a wide range of skills necessary for social competence (Odom et al., 1992) however, there is an apparent consensus that communication and language skills are a critical component (Gallagher, 1991; Guralnick, 1992). Despite this, there have been limited studies as to the link between children's social interactions and their communicative capabilities (Halle, 1985).

It is widely recognized that early communication emerges in the context of infant-adult interactions. A child's early socialization needs and experiences form the fundamental basis for subsequent language development (Rice, 1993). The young child's early communication skills are used to express basic social-communicative intentions. Communication serves as a means of commenting on objects and events of interest, drawing attention to oneself, requesting objects and activities, and engaging in social routines (Bates, 1976; Halliday, 1975). Bruner, as cited in Wetherby and Prizant (1993) labelled these "instinctive" intentions as behaviour regulation, joint attention, and social interaction. As the child's communicative skills develop into a language system, these intentions become diversified, more complex and extended.

The distinction between communicative interaction and social interaction in preschool children is difficult, if not impossible, to determine (Goldstein & Kaczmarek, 1992). The following is a review of what is currently thought to characterize the social-communicative interactions of young typically developing children.

The frequency of communicative interactions of typically developing preschool children is highly variable. Data suggest that preschool children engage in verbal interactions between one third and two thirds of the time spent in free play (Paul, 1985). Garvey and Bendebba (1975) reported a mean rate of 6.9 utterances per minute per child, based on 5 minute samples of preschool child dyads. Mueller (1972) found an average of 3.3 utterances per minute in preschool dyads. Tremblay, Strain, Hendrickson, and Shores (1981) looked at the combination of verbal and non-verbal interactions and determined that children produce peer directed utterances at a rate of 3 times per minute. Verbal initiations were found to be more frequent than non-verbal initiations. The

frequency with which children initiate social-communicative interactions has been strongly correlated with the frequency with which they receive similar bids (Beringer & Garvey, 1981; Charlesworth and Hartup, 1967; Leiter, 1977). Thus, the ability to initiate appears fundamental to social-communicative competence .

Mueller (1972) defined communicative success for preschool children as a verbal or non-verbal response to the speaker that was related to what the speaker had said. Commands and questions were the most useful in getting a response. Mueller also found that success was most likely when the speaker had the listener's attention at the start of the utterance. Children and adults use a variety of verbal and non verbal behaviors with the purpose of gaining or securing the intended listener's attention. These *attention getting devices (AGD)* may include eye contact, touching, physical proximity, vocatives such as "hey" or calling a proper name (McTear, 1985). The developmental literature shows the use of attention getting devices by children as young as two years (Wellman & Lempers, 1977; McTear, 1979, 1985). Their origin has been traced back to the prelinguistic stage. Carter (1978) traced the development of prelinguistic devices, such as the coordination of gesture and vocalization, to the use of conventionalized vocalizations. These vocalizations carry the intent of gaining the listener's attention resulting in the verbal ability to establish joint attention. The use of attention getting devices have been shown to increase with age in peer interactions, suggesting that increases are a function of children's developing communicative competence (Mueller, 1972).The importance of these devices as a prerequisite for successful communication can be seen in models of successful initiations (McTear & Conti-Ramsden, 1992). One must get, or ascertain that they have, a listener's attention before a message can be sent and then received. McTear (1985) defines initiations as falling into one of three categories: questions, requests for action, and statements. If there has been a failure to respond to the first initiation, attention getting devices then serve as an important step in attempts at *reinitiation*. McTear further categorizes reinitiations as repeats, repeats with prosodic shift, repeats with attention-getting or attention-directing devices, and rephrasings.

McTear (1985) observed that in the past, attention getting devices have not been featured in the literature based on the assumption that they were basic and acquired very early. Moreover, attention getting was not expected to be a problem in language impairment based on the theory that development of intent occurs before language development. McTear postulated that researchers had overlooked this aspect of conversation. He concluded that it would be useful if "profiles of conversational disability were to include attention getting as a potential area of difficulty" (p. 233).

Guralnick (1986) has pointed out that the development of peer interactions is also facilitated by the reciprocal relationships that characterize social-communicative interactions. He stated that the processes through which social-communicative skills are acquired appear to be linked to scaffolding by adults and the co-equal qualities of the child-child social exchange. Adults typically provide a highly responsive and often anticipatory social environment. Peers rely on the "effective participation and balanced contribution of both partners" (p. 94). Thus, children's interactions show a balance typically characterized by an alternating, turn taking process between the communicative partners.

It would seem logical to assume that the social-communicative skills of disabled children would be commensurate with their general level of development (e.g., cognitive, motor) (Guralnick, 1992). This does not, however, appear to be the case (Guralnick, 1992). Despite findings that children with disabilities do engage in reciprocal interactions and are responsive to their peers (Guralnick & Paul-Brown, 1986; Guralnick & Weinhouse, 1984) they perform significantly poorer than their typically developing peers matched for general level of development. Specifically, social-communicative interactions occur less frequently (Guralnick & Paul-Brown, 1989; Hadley & Rice, 1991; Rice et al., 1991). Guralnick & Groom (1988) found the frequency of interactions for disabled children to be highly sensitive to settings and characteristics of a child's companions. Finally, expressive language is not strongly correlated with peer related social competence, although the complexity of the speech of children with delays is less than that of typically developing children (Guralnick & Groom, 1987).

Research has primarily focused on social-communicative competencies of disabled children in segregated or mainstreamed classrooms (Guralnick, 1981; Guralnick & Groom, 1985; Strain, 1983, 1985). Language variables have included the frequency and complexity of utterances (Guralnick, 1981; Guralnick & Groom 1985, 1987, 1988; Guralnick & Paul-Brown, 1980, 1984). Salisbury, Britzman, & Kang (1989) addressed the question of the underlying intentionality of the social interactions of six mild to severely disabled children by analyzing their initiation behavior, interaction context, and consequences of the child's communications within the social act. These children were in a classroom with other disabled children, within a regular elementary school. Results indicated that the children displayed a consistent set of intentional communicative initiations and used augmentative strategies to continue interactions.

In summary, while there appears to be significant variation in the frequency of preschool children's communicative behavior, it tends to be reciprocal in nature. There is also an emerging ability to sustain conversation by the use of appropriate verbal and non-verbal responses for typically developing children. Successful interactions also appear to be facilitated by the use of attention getting devices. The social-communicative skills of children with developmental delays in peer interactions appear to be similar to matched groups of children who do not have disabilities in some regard. Significant differences emerge, however, in the frequency, quality, and probable success of social exchange with peers.

Peer Interactions

Interest in the study of peer interactions is a relatively recent development, and is no longer considered a mere "by-product" of the fundamental adult-child relationship (Guralnick, 1986). Guralnick (1986) postulates that ultimately peer interactions become a major influence in the lives of most children. Earlier research has demonstrated the influence of peer interactions on the development of children's social and communicative competencies (Hartup, 1976, 1978; Jenkins, Odom, & Speltz, 1989). To fully understand the peer interactions of children with disabilities we need to first draw on the study of

peer relations with typically developing children (Guralnick, 1986). This section will provide an overview of normal developmental characteristics of peer interactions followed by an examination of social interactions of children with disabilities. It will conclude with the peer interactions between typically developing children and children with disabilities.

An interest in peers emerges in the first year of life. At this stage, an infant displays a stable 50% success rate in eliciting a response from a peer. Social interactions at this stage rarely extend beyond simple initiation-response sequences (Vandell, Wilson, & Buchanan, 1980). By the toddler's second year initiations and responses to peers steadily increase and become more complex, longer, and more varied (Eckerman, Whatley, & Kutz, 1975; Holmberg, 1980; Mueller & Brenner, 1977). Communication, both verbal and non-verbal, become more important to the interaction. By 3 years of age, extended social exchanges with peers now exceed the frequency of elaborated exchanges with adults (Holmberg, 1980). Gradually language and discourse skills become the primary means of social exchange. Cairns (1986) delineates the major interactive/social characteristics associated with the early childhood period as:

- the beginning of strong reciprocity in interchanges.
- rapid development in synchronizing interactions with peers and movement toward predominant relations with peers.
- balance of interruptive interchanges shifts to co-ordinated movement from sensorimotor, non-verbal signals and communication to verbal communicative patterns.
- dominant dyadic patterns, as opposed to small group.

It has been demonstrated that early peer interactions are related to developmental progress, communicative competence, and academic success (Hendrickson, Strain, Tremblay, & Shores, 1981; Strain & Odom, 1986). Peer social relationships may also promote or deter a child's social adjustment, development, and cognitive growth in later years (Hartup, 1978, 1983; Parker & Asher, 1987).

Perhaps the most important index of social competence with peers is the ability to participate with other children in sustained social play (Guralnick, 1986). Communication and language play an ever increasing role in regulating children's play interactions (Garvey, 1976). Goldstein and Gallagher (1992) conclude the goal of young children's peer interactions is the co-ordination of interactive temporal play sequences. The lowest level of play for these young children is parallel play, which is the least verbally demanding and has the lowest potential for disagreement and conflict. However, it is also the least satisfying socially. Nonstereotyped fantasy play is the highest level of play, which also places the greatest verbal demands upon children. Goldstein and Gallagher summarize the impact of language facility on play and social interactions for young children by stating, "children who have limited receptive and/or expressive language skills would have limited co-ordinated play partner potential and, therefore, not be highly valued interaction partners" (p. 193). Therefore, the inability or lack of skills to engage in discourse during play can severely undermine the development of peer interactions.

Children with developmental delays, communication impairments, sensory or motor impairments, or some combination of problems are at great risk for failure to develop social interactions with their peers (Guralnick, 1986; Craig, 1993; Gallagher, 1991, 1993). Disabled children's peer interactions appear to be characterized by a limited repertoire of peer-related social behaviours (Field, 1980), a lack of sustained social exchanges with peers (Craig, 1993; Craig & Evans, 1989), and a predominance of solitary and parallel play (Guralnick & Weinhouse, 1984). Developmentally delayed preschool children's social interactions show fewer social bids, fewer positive responses, and reduced amounts of social interaction in group play (Guralnick & Groom, 1985, 1987; Guralnick and Weinhouse, 1984). A final significant finding of Guralnick and Weinhouse (1984) indicates that the peer social interactions of developmentally delayed children lag substantially behind their cognitive development. While the children in their study did become more socially interactive with their peers over the course of the year,

the beginning of the next school year marked disruptions in their apparently highly fragile repertoire of peer-related social interaction skills.

As Guralnick (1986) points out, it is important that these conclusions be placed in perspective. Threats to the validity of these studies centre on a limited number of studies and outcome measures, brief periods of observation, and indirect comparisons with typically developing children. The majority of studies were conducted in segregated special education settings. Despite these methodological problems, it appears that failure to build peer relationships and the absence of appropriate peer models may deter and hinder social motivation and social skill development (Guralnick, 1986).

While co-equal interactions seem to be the rule for most typically developing children, a dominance by one member of the pair is more characteristic when the other member of the pair is of a lower developmental status or younger chronological age (Guralnick & Paul-Brown, 1977, 1980). Preschool children are capable of adjusting their communicative interactions in accordance with listener attributes. Guralnick and Paul-Brown (1977, 1980, 1984, 1986) have reported that typically developing children make adjustments in their complexity of language (sentence length and syntactic complexity), function (use of more directives), style, and related features when interacting with both children of a younger chronological age and children functioning at a lower developmental level. These adjustments are more significant when the communicative partner is moderately to severely delayed, rather than if mildly delayed (Guralnick & Paul Brown, 1986, 1989). These children may also reduce the complexity of play routines with developmentally delayed children (Peterson & Haralick, 1977). Goldstein and Kazmarek (1992) point out that while these natural adaptations of social and verbal behaviours work to the advantage of children with disabilities, other natural adaptations may not be so desirable. An adaptation to the frequency of utterance of the social partner implies that the less a child with disabilities talks, the less likely the nondisabled child will initiate. Results of studies investigating effects of age groupings on communicative adjustments to peers with disabilities suggest children who are developing typically appear to adapt their speech in what is believed to be a facilitative manner to the level of

their listener (Roberts, Burchinal & Bailey 1994; Wellman & Lempers, 1977). Hartup (1983) concluded after reviewing the results of numerous studies that same age-settings may be the most facilitative for children acquiring skills needed in extended reciprocal interactions, such as conversation. Mixed-age settings however, were also thought to encourage more assertiveness, help-giving, and nurturing behavior and prompt the seeking of assistance. Hartup further suggested that mixed age groups may be the most facilitative for children with disabilities.

In summary, an interest in peers emerges early within the first year of life and quickly becomes a major source of social interaction by age 3. The social interactions of preschool children are dependent upon their ability to engage in sustained co-ordinated play which requires increasingly more complex verbal discourse abilities. Children with developmental delays and disabilities are at great risk for establishing peer relationships given their deficits in communication and play skills. After reviewing 22 studies of integrated settings, Odom and McEvoy (1988) conclude that, overall, typically developing children tend to interact more frequently than moderately or severely delayed peers. Also, typically developing children prefer to interact with typically developing peers than with peers who are moderately or severely delayed. Rice and her colleagues (Gertner, Rice, & Hadley, 1994; Hadley & Rice, 1991; Rice, 1993; Rice et al., 1991) demonstrated that the preferred conversational partners in an integrated preschool setting were generally those with normally developing language skills. Cavallaro & Porter (1980) indicated that developmentally delayed preschool children prefer to interact with children of the same developmental level. While typically developing peers may interact more frequently with other typically developing peers, integrated settings have been shown to stimulate children with disabilities to become involved in more social-communicative interactions overall (Beckman & Kohl, 1984; Devoney, Guralnick, & Rubin, 1974; Paul, 1985; Peterson & Haralick, 1977). Guralnick and Groom (1988) found that children with disabilities engaged in longer interactions with typically developing children than in other (segregated) settings. Ispa (1981) found a higher rate of social interaction and an improved quality of play for disabled children in integrated

settings. Further, integrated settings that consist of mix-age groupings may be the most facilitative for children with disabilities.

A Framework For Social-Communicative Peer Interactions

Guralnick (1992) recently described a hierarchical model in an attempt to provide a comprehensive framework for understanding factors that influence young children's peer related social competence. At the first level are specific social/communicative skills essential for child-child interactions that include influences of the fundamental developmental domains of language, cognitive, affective, and motor development. At the second level are integration, organization and sequencing of social/communicative skills produce strategies within a social task. He states these strategies appear to be most closely associated with peer related competence.

It is evident that developmental domains influence social competence and, conversely, developmental domains are influenced by social competence. Odom and colleagues (1992) point out that cognitive or communication impairments may impede a child's capacity to engage in peer interactions, which may in turn inhibit the development of social competence. Rice (1993) outlines what she has termed the "Social Consequences Account" of limited language skill (p. 150). She distinguishes between socialization as a source of language learning and language as a tool of socialization, but maintains that they are intricately intertwined. Thus, children with limited language are in "double jeopardy" by virtue of their inability to fully realize socialization as a source of language, and at the same time, they are at risk for participation in social interactions. Rice further explains how young children with communication limitations become vulnerable to a negative social spiral. To begin with, these children lack the skills and flexibility for easy entry into, and maintenance of social discourse with their peers. Because of these limitations they are more likely to be ignored, rejected or excluded from peer interactions.

It becomes very clear that the focus of investigation must be the interrelationship of social and communicative development as outlined in Guralnick's framework. For the

preschool child, peers become a major source of socialization. Goldstein and Gallagher (1992) state that a sense of social support and self esteem is obtained from peer relationships. These authors also state that equally important, peers also serve as an important means by which children learn critical communication skills related to things such as the importance of clear communication, effective interpersonal perspective taking, communicative appropriateness, and "the role of communication in the social commerce of daily life" (p. 195). They go so far as to contend that peers not only may be the most effective teachers of appropriate child communicative skills, but may actually be the only ones who can impart some of this knowledge. It is therefore of primary importance that the ways in which disabled children's social-communicative skills affect their social interactions in different environments with their peers be investigated further.

Integration

The practice of providing the least restrictive environment for children with disabilities has resulted in a variety of programs. Integration is the more generic term referring to the process of actively mixing children with disabilities and those developing typically (Odom & McEvoy, 1988). It encompasses mainstreaming, reverse integration and all other models that place disabled children and nondisabled children together in varying ways and ratios.

Mainstreaming is the placement of children with disabilities into programs for and with typically developing children (Karnes & Lee, 1979). These are settings in which more than 50 % of the children are typically developing (Odom & McEvoy, 1988). The placement of typically developing children into programs for disabled children is termed reverse integration (Guralnick, 1981). These are settings in which more than 50% of the children are disabled (Odom & McEvoy, 1988). Segregation is the placement of homogeneous groups of children (individuals who are similar to each other) together, for example, children who are all typically developing or all disabled.

The movement towards integration of disabled children with their typically developing peers began in earnest in the late 1960's and early 1970's. The practice of

placing children with disabilities in the least restrictive environment is grounded in the principle of normalization. This principle can be defined as the "utilization of means which are as culturally normative as possible, in order to establish and/or maintain personal behaviours and characteristics which are as culturally normative as possible" (Wolfensberger, 1972, p.28). This movement has been supported by the passage of P.L. 94-142 in the 1970's and then P.L. 99-457 in 1986 in the United States. The legislative intent of these public laws has been to educate children, with and without disabilities, in the same classrooms wherever possible, including children of preschool age (Striefel, Killoran, and Quintero, 1991). While Canada has not passed similar federal legislation, local educational systems themselves have established policies regarding least restrictive environments and inclusion. Practical application of these principles has resulted in the development of a wide variety of programs where disabled children are educated with their typically developing peer group and engage in activities similar to those practiced by these peers. Developmental theories suggest development can be facilitated and enhanced for children with disabilities by being placed with typically developing models. Piagetian theories and social learning theories lead to the conclusion that the presence of typically developing peers can provide an opportunity for disabled children to learn age-appropriate behaviours and be challenged to develop more advanced skills (Bricker, 1978; Karnes & Lee, 1979). Integrating children with disabilities and typically developing peers provides the potential to create a more demanding environment for the disabled child. Hypothetically, teachers and peers may expect and encourage behaviour that would produce significant changes in the disabled child's repertoire. Additionally, disabled children may acquire new behaviours from observing and modelling others' behaviour (Bricker, 1978). Segregated settings are limited in the number and variety of partners for interaction, and for modelling. Experience with a broad range of peers is considered necessary for maximal achievement and healthy cognitive and social development (Johnson & Johnson, 1980).

Researchers have attempted to closely monitor the effects of integration upon the young children involved in these programs. Odom & McEvoy (1988), after reviewing 10

studies, concluded that generally, preschool children with disabilities made significant developmental gains in integrated programs that were not attributable to maturation alone. Because these studies lacked an experimental control group it could not be determined if the effects of the program were due to the exposure to typically developing peers, the classroom curriculum, or an interaction of the two (Odom & McEvoy, 1988). Studies where children were randomly assigned to a segregated or integrated program showed mixed results in cognitive, communicative or motor development. However where programming for social integration (with normal peers) was also provided, children in the integrated program scored higher on language development (Jenkins, Speltz, & Odom, 1985; Jenkins et al., 1989). Weiss & Nakamura (1992) investigated the efficacy of enrolling typically developing preschool children as models for a group of language impaired children in a university preschool classroom. Results indicated that despite having the prerequisite language competencies for modelling age appropriate language behaviours, the models varied in the amount of time each spent with their language impaired classmates. A meta analysis conducted by Wang and Baker (1985) showed integrated school age students with disabilities in either a full-time or part time mainstreamed program, outperformed segregated disabled students matched for similar classifications of disability. Results of the meta analysis of 11 studies provided support for the effectiveness of integration in improving performance, attitudinal and process outcomes for students with disabilities.

The results of the research reviewed above are not always consistent, nor without limitations. The settings, ratios of disabled children, ratios of adults, level of teacher training, observational periods, and outcome measures have varied significantly. Despite the theoretical assertion that exposure to typically developing peers could contribute to skill acquisition for children with disabilities, research has not demonstrated that physical integration alone contributes to positive developmental outcomes (Odom & McEvoy, 1988). However, where systematic structuring of interactions takes place in integrated settings, positive results have been shown. Several intervention techniques including script training for sociodramatic play (Goldstein, Wickstrom, Hoyson, Jamieson, &

Odom, 1988), peer mediated intervention (Odom, Hoyson, Jamieson, & Strain, 1985; Strain, 1985; Strain, Shores, & Timm, 1977; Tremblay, Strain, Hendrickson, & Shores, 1981), and teacher mediated intervention (Odom & Strain, 1986) have been used effectively to increase social interaction rates of young children with and without disabilities. While these interventions have produced favourable outcomes during training and therapy conditions, there has been a limited demonstration of generalization across settings or children (Chandler & Lubeck, 1992; McEvoy & Odom, 1987; Odom & Strain, 1984).

The presence of disabled peers also provides an opportunity for typically developing peers to develop positive attitudes towards differences in others and foster tolerance and understanding. Integration can lead to more positive attitudes and greater acceptance of disabled children on the part of teachers and peers (Esposito & Peach, 1983; Esposito & Reed, 1986). Early studies examining integrated versus segregated settings found a difference in the attitudes of nondisabled children towards severely handicapped peers as a consequence of social contact between the two groups (Voeltz, 1980, 1982). The evidence suggests strongly that typically developing children are not adversely affected by enrolment in integrated classrooms, and may in fact demonstrate developmental benefits from the curriculum and specialized instruction (Odom & McEvoy, 1988).

Rational for Study

Building on Guralnick (1990, 1992) and Odom and Brown (1993) the term social-communicative competence will be used in this study to refer to children's effective and appropriate use of social-communicative behaviours in their interactions with communicative partners. For the child with developmental delays, being able to initiate and respond appropriately in conversational contexts, as well as responding to initiations of others seems to be critical for the development of meaningful social relationships in an integrated setting. The need for further systematic investigation in this area has been expressed by many researchers. Ostrosky et al. (1993) state that research

needs to further explore the relationships between children with and children without special needs. Specifically, "descriptive studies that assist in specifying behaviours that lead to development of peer relationships ... are necessary to advance peer mediated social-communicative research" (p. 180). These authors also state that future research should consider the settings in which social-communicative interactions are to occur. Goldstein and Kaczmarek (1992) state descriptive research is needed to expand our empirical foundation. Studies that focus on communicative function may help to identify additional facilitative strategies to expand the current set of peer mediated intervention strategies, and also enhance communicative repertoires of children with disabilities. Guralnick & Paul-Brown (1989) concluded that differences in pragmatic aspects of disabled children's communicative competence may emerge if the focus of analysis turns to issues of appropriateness and effectiveness of communicative turns. Finally, there is a need to look at the nature of interactions between children with disabilities and their communicative partners to further clarify the effects of integration (Odom, Peterson, McConnell, & Ostrosky, 1990).

This study sought to investigate the social-communicative interactions of young children with developmental delays and their counterparts in integrated settings. How these children performed as initiators of conversation and respondents to other's initiations was of specific interest. The specific purpose of this study was to compare a descriptive analysis of the social-communicative interactions of a group of developmentally delayed preschool children between two conditions of integration. The Early Education Programs of the Edmonton Public Schools served as reversed integration settings. Community daycares in Edmonton, Alberta served as mainstreamed integrated settings.

Research Questions

1. (a) Do developmentally delayed preschool children attempt social-communicative initiations more often in a reversed (REV) or mainstreamed (MAIN) integrated setting?

   (b) Are these initiations successful (i. e. receive an appropriate response) more often in REV or MAIN?

2. Do these children attempt appropriate responses more often in REV or MAIN?
3. Are interactions reciprocal more often in a REV or MAIN setting?
4. Are successful initiations across REV and MAIN more likely to be behavior regulation, social interaction, or joint attention)?
5. (a) Are successful initiations of developmentally delayed preschool children preceded by or concurrent with an attention getting device?

   (b) Are successful initiations of communicative partners preceded by or concurrent with an attention getting device?

CHAPTER 3

Method

Subjects

Developmentally delayed children

The subjects were six preschool children with moderate to severe developmental delays. They were between the ages of 4 years 8 months and 5 years 10 months. All subjects were recruited from the three Early Education Programs (EEP) administered through the Edmonton Public Schools. Acceptance into these programs is based on established criteria of the Program Unit Grant (PUG), developed by Alberta Education, for moderate and severe developmental delays. Information regarding each subject's cognitive, communicative, social-emotional, and motor development was obtained from EEP student cumulative records. These records contain multiple sources of information, including diagnostic and assessment data from rehabilitation hospitals, health centres, or previously attended programs. Based on this information, program staff assign a degree of delay for the four areas of development. This information is displayed in Table 1.

Subjects also had to be ambulatory and at or above the intentional stage of communication. That is, the child needed to demonstrate prelinguistic gestures, vocalizations or verbalizations directed toward another person for the purpose of communication (Wetherby & Prizant, 1993). No subject had a primary diagnosis of autism, pervasive developmental disorder, attention deficit disorder, emotional disturbance, or any other psychiatric disorder nor did any subject present with a diagnosed sensory impairment (hearing impairment, legal blindness). Of particular importance to this study, subjects were enrolled in an EEP for half days and concurrently attended a community mainstreamed daycare program for the other half of the day. Appropriate consent forms were signed by parents of the subjects, parents of EEP and daycare peers and EEP and daycare staff. See Appendices C-E.

Over the course of the study, it became clear that subject 6 differed from the other subjects in a number of significant ways. While being "technically" ambulatory, he

required the use of a wheelchair or walker for longer distances and ambulated in small areas by dragging or crawling. All other subjects could walk and run without assistance. This appeared to have a significant impact on his ability to physically approach peers and "keep up" with them. Secondly, subject 6, while meeting the criterion of intentional communication, was substantially more delayed than the other subjects. He was the oldest subject but the lowest functioning in all domains. Subject 6 displayed a single nonverbal symbolic communicative act (i. e., sign for "want"). The other five subjects were verbal and exhibited multi-word utterances. Finally, subject 6 was identified as dependent level handicapped. This indicated that S6 was not considered to be functioning independently and required a greater degree of assistance then the other "independent" level subjects. Consequently, subject 6 was analyzed separately from the other subjects.

Table 1: Characteristics of developmentally delayed subjects.

			Developmental Delay			
subject	*case history information*	*CA**	*cognition*	*communication*	*motor*	*social*
S1	global delay	5 years 4 months	mild-moderate	moderate-severe	mild	moderate
S2	failure to thrive; cleft palate; seizure	5 years 0 months	mild-moderate	severe	mild hypotonia	mild
S3	premature; global delay	4 years 8 months	mild-moderate	moderate	normal	mild
S4	global delay	4 years 7 months	mild-moderate	severe	normal	mild- moderate
S5	Rubenstein-Taybi syndrome	5 years 3 months	severe	severe	moderate	moderate
S6	Athetoid CP; developmental delay secondary to CMV	5 years 10 months	severe	severe-profound	severe	severe

* chronological age at midpoint of videotaping

Communicative partners

Although the primary interest of this study was the developmentally delayed subjects, social-communicative partners including peers and adults in both settings were included in the coding and data analysis. Peers were children who were between 3 years and 6 years of age with and without identified developmental delays. Adults were teachers, aides, and daycare staff who interacted with the developmentally delayed subjects.

Materials and Instrumentation

A hand held Panasonic Omnimovie VHS video recorder was used to videotape interaction samples. Audio input was provided by a Samson wireless microphone housed in a vest worn by the subject. Each subject was conditioned to the vest by wearing it for 30 minutes prior to videotaping.

Setting

The settings in this study were reverse and mainstreamed integration. Reverse integration was defined as an EEP setting in which there were greater numbers of children with developmental delays than typically developing children. Mainstreamed integration was defined as a community daycare setting in which the number of typically developing children was greater than the number of children with developmental delays.

The subjects attended the reverse integration EEP classroom five half days per week (either all mornings or all afternoons) and attended the mainstreamed daycare for the other half of the day. The six subjects each attended a different EEP classroom, with two classrooms per three different sites. The six subjects each attended a different mainstreamed daycare room at five sites. The two subjects attending the same daycare, but different rooms, also attended the same EEP site in different classrooms.

During videotaping, the EEP classrooms typically consisted of one or two adults and 4 to 8 children. Children in the EEP classrooms were grouped heterogeneously for disorders and developmental levels. The daycare rooms were more varied in their makeup. There were typically 2 or 3 adults present, however these adults were not

always the same ones. The number of children in the group also varied, ranging from three to twenty. Five daycare rooms were mixed-age groups and one daycare room was a same-age group.

Sampling was done during that portion of the subjects' day when opportunity for child-child/child-adult interactions without structured teaching was greatest. Samples were therefore videorecorded in both settings during designated "free play" or "centre" time. Play centres in both settings contained developmentally appropriate toys and materials. Common play areas included the house centre, water/sand tables, book centre, manipulative toy centre, blocks, and art/craft centre. Generally, adult scaffolding of peer to peer interactions did not occur during this time. The use of peers as intervention agents was not observed during sampling.

Procedure

Design

This study was a comparative within-group design.

Sampling

Two videotaped samples of approximately thirty minutes were taken during free play time in each of the settings to ensure the representativeness of the sample. The length of samples varied slightly due to scheduling constraints in the various classrooms and daycares. A total of twenty-four videotaped samples was therefore collected for six subjects (four samples each). Each sample was taken on different days but all videotaping was completed within 4 weeks to control for maturation effects. Sampling between the two settings was done in random order to control for order effects.

Coding

The coding protocol for this analysis was a modification of the rating of communicative parameters in the *Communication and Symbolic Behavior Scales* (*CSBS*), (Wetherby & Prizant, 1993), which is designed to examine communicative, social affective, and symbolic abilities of developmentally young children. The reported internal consistency coefficient for the *CSBS* communication composite is .91 based on

the entire sample and .84 based on the sample of children at the multiword stage. The data provided suggest that the *CSBS* can produce relatively stable rankings of subjects, even when those subjects exhibit improvement over a short period of time. Interrater reliability was reported to be .90, .88, and .83 for the three raters. The reader is referred to the *CSBS* manual for further description of reliability and validity of this instrument.

Whereas the *CSBS* utilises child-adult interactions, this study was interested in child-child and child-adult interactions. The coding protocol for this study is provided in Appendix A. Definition of codes is provided in Appendix B. The communicative act column was marked with the time at one minute intervals for each video sample. The initiator was identified as the subject, peer, or adult. Communicative initiations were then coded by their intended communicative function. Those functions were joint attention , joint attention question, behavior regulation, behavior regulation protest, and social interaction. The initiation was identified as to mode (verbal or nonverbal) of communication[1] . Finally, the initiation was coded by the presence or absence of an attention getting device, including increased physical proximity, eye contact, touch, a vocative such as "hey", or addressee's name. The addressee was identified for each communicative initiation as subject, peer, or adult. The response of the addressee was coded as appropriate or no response. An *appropriate response* was one that acknowledged or complied with the communicative function of the initiation. A *no response* was coded when three seconds or more elapsed after the initiation, or the addressee ignored the initiator or left the play area. Mode of response was again identified as verbal or nonverbal. Subsequent contingent responses from the subject and communicative partner were coded sequentially on the respondent side of the coding sheet. A *reciprocal exchange* occurred when the subject took more than two turns (inclusive of an initiation and /or responses) within a communicative exchange. A new communicative initiation was coded if the communicative act was a change in topic or if more than 3 seconds has elapsed since the previous act.

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[1] Although collected, mode was not used in the analysis because, except for S6, all subjects were verbal.

Reliability

Coding of the video tapes was completed by the principal investigator. A random sample of 20% of the videotaped samples in each condition was recoded. Two graduate students in speech language pathology served as reliability judges. They were trained on the use of the coding system by the principal investigator using taped segments that were not part of the data. They each recoded 10% of the data. Overall point by point agreement (McReynolds & Kearns, 1986) was 94%. Point by point agreement was determined for specific coding categories: initiations 96%, communicative function 86%, mode of communication 98%, attention getting device 86%, addressee 98%, response 95%, and mode of response 98%.

CHAPTER 4

Results

The purpose of this study was to compare the social-communicative interactions of developmentally delayed preschool children across reverse integration in an early education program and mainstreamed integration in a community daycare. A group of six children enrolled in both settings during the day presented a unique opportunity to investigate these two types of integrated settings.

Comparisons involved both subjects and communicative partners. Subject 6 was not included in the group data analysis as previously stated but his performance is presented in relation to the group results for each question. Data were entered into the SPSS statistical program. The paired samples *t*-test (Bruning & Kintz, 1987) was used to analyze the data for questions 1, 2 , 3, and 5. A Bonferroni correction was used to correct for the effect of multiple comparisons on Type I error. The original alpha level was set at .10 following the guidelines of Huberty (1987) for exploratory studies with multiple comparisons. There were five subject comparisons. The original alpha level of .10 was divided by five resulting in a statistical criterion of .020. A *t* value larger than 3.747 (df = 4) was required for statistical significance. There were six partner comparisons. The original alpha level of .10 was divided by six resulting in a statistical criterion of .017. A *t* value larger than 3.747 (df = 4) was required for statistical significance. Question 4 was analyzed with the use of descriptive statistics. Questions and corresponding data are provided below. Rates and proportions were used because of variation in sample length.

1. (a) Do developmentally delayed preschool children attempt social-communicative initiations more often in a reversed (REV) or a mainstreamed (MAIN) integrated setting?

Rate of initiations per minute was computed by dividing the total number of initiations by time for each subject in each setting. No significant difference was found

for the rate of initiations between REV (M = 1.1244) and MAIN (M = 1.2652), $t(4)$ = .99, 2-tail p = .378. Subject 6 demonstrated very low rates of initiation in both settings REV (M = .1250) and MAIN (M = .1670).

(b) Are these initiations successful (i. e. receive an appropriate response) more often in REV or MAIN?

The proportion of appropriate partner responses to total subject initiations for each subject in each setting was calculated. No significant difference was found between REV (M = .5676) and MAIN (M = .5078), $t(4)$ = 1.95, 2-tail p = .123. Subject 6 demonstrated a higher proportion of successful initiations in MAIN (M = .875) than REV (M = .375), however all responses in MAIN were from adults only. Subject 6's results were also based on an extremely small number of subject initiations (7 and 8 respectively).

2. Do these children attempt appropriate responses more often in REV or MAIN?

Rate of partner initiations was determined first as the context for this question. Partner initiation rate was calculated by total partner initiations divided by time. A significantly higher rate of partner initiations was found for REV (M = 1.6506) than MAIN (M = 1.2194), $t(4)$ = -6.06, 2-tail p = .004. All five subjects reflected the group effect. Subject 6 demonstrated the opposite effect with partner initiations higher in MAIN (M = 3.078) than REV (M = 2.125).

The proportion of appropriate subject responses to partner initiations for each subject in each setting was then calculated. No significant difference was found between REV (M = .5196) and MAIN (M = .5510), $t(4)$ = .76, 2-tail p = .488. Subject 6 reflected the group performance in REV (M = .350) and MAIN (M = .480).

Because subjects may have produced responsive acts subsequent to the initial appropriate response to a given partner initiation (i.e., reciprocal exchange), the overall rate of responding was also determined. This was calculated by dividing the total number of subject responses (i.e. responses to initiations and any additional contingent responses) by the time of the sample in each setting. No difference was found between

REV (M = 2.02) and MAIN (M = 1.4576), $t(4)$ = -2.52, 2-tail p = .065. Subject 6 demonstrated a reverse pattern in REV (M = 1.290) and MAIN (M = 1.480).

3. Are interactions reciprocal in nature more often in REV or MAIN setting?

The total number of reciprocal exchanges (interactions extending beyond two turns) was divided by time for each subject in each setting to determine the rate of reciprocal exchanges. No significant difference for rate of reciprocal exchanges was found in the settings REV (M = .5805) and MAIN (M = .4804), $t(4)$ = -.99, 2-tail p = .377. Subject 6 demonstrated a reverse pattern in REV (M = .208) and MAIN (M = .281).

4. Are successful initiations across REV and MAIN more likely to be behavior regulation, social interaction, or joint attention)?

The proportion of appropriate responses to initiations by communicative function of joint attention, joint attention question, behavior regulation, behavior regulation protest, and social interaction was calculated. Table 2 illustrates the proportions of communicative function combined across the five subjects and combined across settings.

Table 2: Proportion of appropriate responses to initiation by communicative function.

Communicative function	*ratio receiving appropriate response*
joint attention	.443
joint attention question	.607
behavior regulation	.544
behavior regulation protest	.348
social interaction	.419

Visual inspection of the data reveals successful initiations are not strongly related to communicative function with possibly the exception of behavior regulation protest. It is important to note that the percentage of initiations that were behavior regulation protest was extremely small, less than 8% of all initiations. The predominant communicative functions used by the subjects were joint attention comprising

approximately 48 % of all initiations and behavior regulation comprising approximately 31%. Joint attention question and social interaction were used infrequently, comprising approximately 4% each of all initiations.

5. (a) Are successful initiations of developmentally delayed preschool children preceded by or concurrent with an attention getting device (AGD)?

All five subjects used an attention getting device at some time. The proportion of use was determined by dividing the number of initiations with an AGD by the total number of initiations for each subject in each setting (Table 3).

Table 3: Proportion of use of an attention getting device with a subject initiation.

Subject	*REV*	*MAIN*
S1	.286	.327
S2	.541	.525
S3	.263	.263
S4	.646	.514
S5	.326	.258

There was no significant difference in the proportion of use of an AGD between REV (M = .4124) and MAIN (M = .3774), $t(4)$ = -.1.17, 2-tail p = .307.

The proportion of appropriate responses to initiations *with* an AGD and the proportion of appropriate responses to initiations *without* an AGD were compared for REV and MAIN. Results for REV indicate a significant difference between initiations with an AGD resulting in an appropriate response (M = .742) and initiations without an AGD resulting in an appropriate response (M = .399), $t(4)$ = -4.10, 2-tail p = .015. A significant difference was also found for MAIN between initiations with an AGD resulting in an appropriate response (M = .769) and initiations without an AGD resulting in an appropriate response (M = .3768), $t(4)$ = -10.69.10, 2-tail p = .0001. Subject 6 did not use an AGD in either setting.

(b) Are successful initiations of communicative partners (peers and adults) preceded by or concurrent with an attention getting device?

All five groups of communicative partners used an attention getting device at some time. The proportion of use was determined by dividing the number of partner initiations with an AGD by the total number of partner initiations for each subject in each setting (Table 4).

Table 4: Proportion of use of an attention getting device with a partner initiation.

Communicative partners	*REV*	*MAIN*
S1	.487	.739
S2	.451	.609
S3	.437	.349
S4	.613	.304
S5	.561	.558

There was no significant difference in the proportion of partner use of an AGD between REV (M = .5098) and MAIN (M = .5118), $t(4)$ = .02, 2-tail p = .985.

The proportion of appropriate subject responses to partner initiations with an AGD and the proportion of appropriate subject responses to partner initiations without an AGD were compared for REV and MAIN. In REV there was a significant difference between initiations with an AGD resulting in an appropriate response (M = .820) and initiations without an AGD resulting in an appropriate response (M = .472), $t(4)$ = 8.04, 2-tail p = .001. A significant difference was also found for MAIN between initiations with an AGD resulting in an appropriate response (M = .7512) and initiations without an AGD resulting in an appropriate response (M = .4440), $t(4)$ = -7.16, 2-tail p = .002.

CHAPTER 5

Discussion

Effects of Setting on Initiations and Responses

The developmentally delayed preschool subjects in this study did not attempt more initiations, nor were these initiations any more successful, in a reverse integrated or mainstreamed setting. Further, the success of an initiation did not appear to be related to its communicative function. What might account for these findings? While the two settings differed in the ratio of typical to disordered children, they may in fact not have differed significantly on a potentially more influential factor. Roberts, Burchinal, and Baily (1994) state that the quality of a communicative interaction appears to be a function of *both* communicative partner's skills. They postulate that differences in levels of communicative competence may greatly affect how children talk and modify their communication to their conversational partners. They hypothesize that these differences in communicative competence may be reflected in the frequency of children's interactions, who their communicative partners are, and how they use language. As well, it should affect the language input they receive from other communicative partners. These researchers found that interactions between pre-schoolers with disabilities and their peers without disabilities were influenced by classroom grouping. In mixed-age groups children both with and without disabilities took more turns in conversation with partners with disabilities than did children in same-age classes. Children with disabilities in the mixed-age classes took more turns in interactions with peers and had proportionality more interactions that were responses rather than initiations. The researchers stated that access to conversational partners of different developmental levels may provide exposure to different levels of language and account for the differences seen in mixed-age and same-age groupings. The mainstreamed daycare rooms in this study were predominantly mixed-age groupings. The reverse integrated preschool rooms were all comprised of children who were functioning at varying developmental levels. The

availability of conversational partners of different developmental levels and communicative competence may not have been significantly different between the two settings.

It is also possible that the apparent lack of differences were due to setting generalization. Certainly it could be predicted that social and communication skills as well as style of interaction would generalize across settings. The direction of any generalization however, cannot be determined from this study. Moreover, potential effects of individual settings are obscured by setting generality.

From a clinical standpoint, neither setting appeared to promote an adequate rate of initiation for these subjects. Research on typically developing children shows average rates of initiation for preschoolers be around 3 to 6 acts per minute (Garvey and Bendebba, 1975; Mueller, 1972; Tremblay, Strain, Hendrickson, and Shores, 1981). The children in this study demonstrated alarmingly low rates of initiation, on average just over one per minute, regardless of setting. These results are in keeping with previous findings that the social-communicative skills of disabled children are not commensurate with their general level of development (Guralnick, 1992). The rate of initiation for the children in this study does not appear to be in keeping with their stage of language development. Wetherby, Cain, Yonclas, & Walker (1988) found that normally developing children increased their rate of initiations substantially at the multi-word stage to about 5 acts per minute. Children at the prelinguistic stage produced about one act per minute. A second study found further, that for children with disabilities at the prelinguistic and one word stage, increases in rate were not dependent upon advances in language development (Wetherby, Yonclas, & Bryan, 1989). Wilcox (1995) postulates a "threshold" rate for young children making the transition from prelinguistic to symbolic communication. Her preliminary data shows a rate of approximately one act per minute to be crucial for the emergence of language. The longer it takes to reach this threshold, the later the emergence into symbolic communication, hence the longer the delay persists. She contends that this minimum rate provides enough opportunity to attempt initiations and become "motivated" to develop more sophisticated means of

communication for successful interactions. While the group of children reported here were clearly at a multi-word stage, their rates of initiations were comparable to the normal prelinguistic children in the Wetherby et al. study. They also demonstrated a similar rate to the developmentally delayed children who were emerging into symbolic communication in the Wilcox study. During optimal time for play and social interaction, the children in this study appeared to not have moved much beyond the "threshold" rate seen in children at younger ages and lower language levels. Subject 6, who was at least prelinguistic and at most emergent at the symbolic communication stage, demonstrated initiations well below the threshold rate.

The likelihood that these subjects would receive an appropriate response was, on average, only 50%. These findings are consistent with previous research on children with developmental and communicative disabilities (Guralnick & Paul-Brown, 1989; Hadley & Rice, 1991; Odom and McEvoy, 1988; Rice, Sell, & Hadley, 1991).

It was also apparent that the subjects did not produce appropriate responses to partner initiations more often in one setting or the other. In addition, there was no difference in the overall rate of response when responsive acts in reciprocal exchanges were included. On average, the subjects engaged in one to two responsive acts per minute and responded to only half of all partner initiations. While reciprocal exchanges occurred, the rate as well as length of reciprocal exchanges was low. The rate did not differ between settings. On average, one reciprocal exchange occurred every two minutes. The length varied for each subject, but ranged from three to five turns. Subject 6 only engaged in reciprocal exchanges that were highly familiar social routines. These exchanges were reliant upon an adult initiation and scaffolding and did not occur with a peer.

Difficulty with reciprocity and engaging in extended conversations is consistent with previous research with communicatively impaired children (McTear, 1985; Wetherby & Prizant, 1993). Furthermore the low proportion of appropriate subject responses to initiations may be accounted for by the low rate of partner initiations. Although a statistical difference was found between settings for rate of partner

initiations, the clinical significance of that finding is an imperical question. On average, partners initiated to the subjects only 1.5 times per minute. These low rates may have been insufficient to promote higher levels of responding from the subjects. As previous studies have shown, the frequency with which children receive initiations from peers is correlated to the frequency of their own initiations (Beringer & Garvey, 1981; Charlesworth and Hartup, 1967; Leiter, 1977). This appears true for the children in this study. These findings seem to fit with Rice's (1993) concept of the "Social Consequences Account" of limited language skill (p. 150). As she states, these children are in double jeopardy because of their inability to fully realize interactions with peers as a source of language, and at the same time, they are at risk for participation in social interactions.

In summary, overall rates of initiations and responding appeared so low that these children did not have sufficient opportunity to practice these basic elements of social communicative exchange. The conversational abilities of initiating to others and getting a response as well as receiving and responding to partner initiations certainly appear to be interrelated. Free play in each setting did not appear to promote more than a base rate of initiation, responding or extended social-communicative exchanges. For subject 6, who was much lower functioning than the group of five subjects, initiations rarely occurred and virtually never to a peer. He was responsive to partner initiations, which were predominantly from adults. He engaged in reciprocal exchanges that required non symbolic level responses within a familiar social routine with an adult.

Effectiveness of Attention Getting Devices

Regardless of setting, subjects were much more successful in obtaining an appropriate response and in responding appropriately when there was an attention getting device accompanying the child and partner initiation, respectively. Previous research indicates that attention getting devices should increase the likelihood of a successful initiation by communicatively impaired children. Rice, Sell, and Hadley (1991) and Hadley and Rice (1991) investigated the social interactions and conversations of

language impaired children in an integrated preschool program and indeed found differences in the interactions of the language impaired preschool children when compared to their normal peers. At least part of the difference in social interaction was thought to be attributable to the *responses* of the peers. The language impaired children initiated less frequently than their normal peers, however, more interestingly they were ignored more by all peers. These investigators attributed this finding in part to attention elicitation. They speculated that the language impaired children were less likely to gain their partner's attention prior to initiating, therefore "if they did not first gain attention by using... appropriate conversational devices, their initiation attempts may have been less likely to connect with their interlocutors" (p. 1314).

In addition, the results of the present study show that developmentally delayed subjects were much more responsive to partner initiations that included an attention getting device. This is supported by McTear (1985) who has identified attention getting devices as a strategy for reinitiations, which occur when there has been a failure by the child to respond to the first initiation. Consequently, attention getting devices appear to be an important component of successful communication, including both initiations and reinitiations. Clinically then, teaching young children to use attention getting devices would appear to be an important intervention strategy for promoting successful initiations and conversational repairs. Conversely, training communicative partners to use attention getting devices might help to promote more reliable appropriate responding by a developmentally delayed child.

While developmentally delayed children may demonstrate deficits in syntax and semantics, it would appear that it is their pragmatic difficulties that significantly hinder communicative attempts. Improving a child's ability to produce specific language forms may be of little value if he does not initiate to his peers or is generally ignored by them. Subject 6 is a good case in point. This young child was encouraged to use signs, but his rate of initiation was so low that intervention goals may have been misplaced.

In summary then, for any environment to support improved social-communicative skills in young children with developmental disabilities, it is crucial that

their rate of initiation be increased beyond their typically low base rate. In addition, an increase in the effective use of attention getting devices is pivotal to the success of social-communicative interactions.

Limitations and Implications

Caution must be exercised when interpreting data derived from this small group of subjects. One limitation of this study is the small sample size which puts the results at risk for a Type II error. Secondly, while this small group of subjects met selection criterion and were documented as moderately-severely developmentally delayed, they displayed a range of developmental disabilities. Thus, they must be considered somewhat of a heterogeneous group. Subject six demonstrated such significant differences from the others that it was necessary to exclude his data from the group. Finally, these subjects may represent a unique group of children by virtue of the fact that they were enrolled in two types of integrated settings. It is not known if children enrolled exclusively in a reverse integrated program or a mainstreamed program would show the same results. Future research could compare the social-communicative skills of a larger sample of young children not only across settings but between different groups of children. It should be pointed out however, that a strength of this within subject study is that it controls for the subject variable.

It must be made clear, that the results discussed in this study pertain to the five subjects who comprised the group. It may be that children functioning below a multi-word language stage, such as subject 6, would demonstrate different results, however a larger sample is required.

Generalization of findings to other situations or activities within the two settings for these subjects must be done carefully. The observations in this study occurred during "free play", a fairly unstructured time in which adult interaction may have been minimized. Video recording was also done at a time when only daycare staff, teachers and aides were in the room. Throughout the day these children are also engaged in many activities with other adults such as speech language pathologists, physiotherapists,

occupational therapists, and educational consultants who may show differences in how they respond and initiate to these children.

A final limitation of this study is that it is not known if, overall, subjects demonstrated rates that differed from their peers. Data was not obtained for peer performance with partners other than the subjects. There is substantial research to indicate that typically developing peers do initiate more often and usually to other typically developing peers, are more responsive to typically developing peers, and tend to ignore their peers with disabilities. The literature provides a solid base of research to show that simply placing children with disabilities in settings with typically developing peers results in minimal effects on language and social competence. Recent research on targeting social skills in young children and training peers as intervention agents is proving very promising (Goldstein et al., 1988; Odom et al., 1985; Strain, 1985; Strain & Kohler, 1988; Strain et al., 1977; Tremblay et al., 1981).

These findings have implications for delivery of services within speech language pathology. It seems necessary to examine the social-communicative interactions of preschool children with developmental delays and their communicative partners within various integrated settings. More specifically, the competencies assessed should include effective use of attention getting devices. Training young children to use or enhance their use of attention getting devices appears promising, if not crucial, as a relatively simple strategy to increase success of social-communicative interactions.

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APPENDIX A

Coding Sheet

Initiations						Responses			
Broad Transcript	**Time**	**Initiator (S, P, A)**	**Function (JA, JA?, BR, BRP, SI)**	**Mode (V, NV)**	**AGD (+, -, #)**	**Address -ee (S, P, A)**	**Response (+, -, NR)**	**Mode (V, NV)**	**Broad Transcript**
Totals:									

APPENDIX B

Definition of Codes

Communicative Act

Initiation (I):
A gesture, vocalization, or verbalization directed to a peer or adult that serves a communicative function.

Initiator:
Subject (S)
Peer (P)
Adult (A)

Function

Joint Attention (JA)
A communicative act used to direct another's attention to an object, event, or topic of a communicative act (e.g., comment).

Joint Attention Question (JA?)
A communicative act used to direct another's attention to an object, event, or topic of a communicative act by seeking information or clarification with, for example, wh questions or rising intonation.

Behavior Regulation (BR)
A communicative act used to regulate the behavior of another person to obtain a specific result (e.g., request object/action, direct).

Behavior Regulation Protest (BRP)
A communicative act used to regulate the behavior of another person by protest of an object or action.

Social Interaction (SI)
A communicative act used to attract or maintain another's attention to oneself (e.g., request social routine, request comfort, call, greet, show off).

Mode

Verbal (V)
Contains a lexical form(s) defined as a consistent sound pattern or sign that approximates a conventional word and is used to refer to a specific object, action, or attribute.

Non Verbal (NV)
Contains a conventional gesture (point, push, reach, wave, head shake/nod, show, give), a contact gesture (manipulating another's hand, giving an object, showing an object, touching

or tapping and object/picture while pointing) or a distal gesture (open handed reach, pointing at a distance, depictive movement), with or without a vocalization.

Attention Getting Device (AGD)

Used (+)

A behavior immediately preceding or concurrent with a communicative act that gains the attention of the addressee: physical proximity, physical touch, eye contact, a vocative such as "hey", or addressee's name.

Not Used (-)

An attention getting device was not used preceding to or concurrent with a communicative act.

Could Not Determine (#)

Unable to code the presence or absence of an attention getting device, e. g., back turned to camera, out of camera range.

Response

A gesture, vocalization, verbalization or compliant act directed to a peer or adult that follows within 3 seconds of that peer or adult's communicative act.

Addressee:

Subject (S)

Peer (P)

Adult (A)

Appropriate (+):

An act that acknowledges or complies with the communicative function of the initiation.

Inappropriate (-)

An act that does not acknowledge or comply with the communicative function of the initiation.

No Response (NR)

No responsive act within three seconds of an initiation, ignore, or leaving the centre.

Adapted from Wetherby & Prizant, 1993; Mueller, 1972.

APPENDIX C

Participant's Informed Consent (Subjects)

Title of Project: The social-communicative interactions of developmentally delayed preschool children in integrated settings.

Principal Investigator: Mary A. Reynolds, Graduate student
University of Alberta
492-5407

Supervisor: Gary Holdgrafer, Ph.D.
Professor, Department of Speech Pathology and Audiology
2-70 Corbett Hall
University of Alberta
Edmonton, Alberta
492-5990

Description of Study: The purpose of this research project is to describe how developmentally delayed preschool children communicate with their normally developing peers, developmentally delayed peers, and adults, in two types of integrated settings. The subjects of this study will be children who exhibit developmental delays and meet the criterion for subject selection. Cumulative files kept by the Early Education Program will be used to determine eligibility. The subjects must also be enrolled both in a reverse integrated setting (the Early Education Program) and a mainstreamed setting (a daycare). The subjects will be videorecorded on two occasions in each setting during free play. A small wireless microphone will be worn by the subject and will be housed in a comfortable vest or fanny pack. Interactions during free play for a continuous forty minute period will be videorecorded. The investigator will remain at a reasonable distance away from the children, and will not interfere with or interact with the children during videotaping. The investigator's presence will be as unobtrusive as possible and will not affect the activities of the classroom. No intervention or other experimentation will be conducted.

Confidentiality of Information: As mentioned above, the sessions will be recorded on videotape. It is customary for research projects to ensure that the privacy of research participants is maintained by restricting access to research materials that would identify participants. To ensure the privacy of your child, video tapes will be identified by project ID number only. Only project researchers will have access to the videotapes. All tapes will be kept in a locked filing cabinet with the same restricted access.

The videotapes will be used only for the research purposes stated above. Information obtained from cumulative files will likewise be identified by Id number only.

Your child's participation in this study is completely voluntary. If you agree to allow your child to participate, you may withdraw from the study at any time without negative consequences. If you consent to your child's participation, please return one copy of this form with your signature.

If you have any questions about this project, either before or after you give your consent, please do not hesitate to call Mary Reynolds at 492-5407. Thank you for considering this request.

I have read the description of the research project entitled "The social-communicative interactions of developmentally delayed preschool children in integrated settings" to be conducted by Mary A. Reynolds under the supervision of Dr. Gary Holdgrafer. I give my permission for my child to participate in this study and for Mary Reynolds to determine eligibility by reviewing his/her cumulative file. I also give permission for Mary Reynolds to contact the daycare where my child is enrolled. I have received a copy of the consent form.

_____	_____
Participant's printed name	Date
_____	_____
Parent/Guardian signature	Witness
_____	_____
Investigator's signature	Investigator's printed name

APPENDIX D

Participant's Informed Consent (Peers)

Title of Project: The social-communicative interactions of developmentally delayed preschool children in integrated settings

Principal Investigator: Mary A. Reynolds, Graduate student
University of Alberta
492-5407

Supervisor: Gary Holdgrafer, Ph.D.
Professor, Department of Speech Pathology and Audiology
2-70 Corbett Hall
University of Alberta
Edmonton, Alberta
492-5990

Description of Study: The purpose of this research project is to describe how developmentally delayed preschool children communicate with their normally developing peers, developmentally delayed peers, and adults in two types of integrated settings. The subjects of this study will be enrolled both in a reverse integrated setting (the Early Education Program) and a mainstreamed setting (a daycare). The subjects will be videorecorded on two occasions in each setting during free play. A small wireless microphone will be worn by the subject and will be housed in a comfortable vest or fanny pack. Interactions during free play for a continuous forty minute period will be videorecorded. The investigator will remain at a reasonable distance away from the children, and will not interfere with or interact with the children during videotaping. The investigator's presence will be as unobtrusive as possible and will not affect the activities of the classroom. No intervention or other experimentation will be conducted.

Confidentiality of Information: As mentioned above, the sessions will be recorded on videotape. It is customary for research projects to ensure that privacy of research participants is maintained by restricting access to research materials that would identify participants. To ensure the privacy of your child, video tapes will be identified by project ID number only. Only project researchers will have access to the videotapes. All tapes will be kept in a locked filing cabinet with the same restricted access. The videotapes will be used only for the research purposes stated above.

Your child's participation in this study is completely voluntary. If you agree to allow your child to participate, you may withdraw from the study at any time without negative consequences. If you consent to your child's participation, please return one copy of this form with your signature.

If you have any questions about this project, either before or after you give your consent, please do not hesitate to call Mary Reynolds at 492-5407. Thank you for considering this request.

I have read the description of the research project entitled "The social-communicative interactions of developmentally delayed preschool children in integrated settings" to be conducted by Mary A. Reynolds under the supervision of Dr. Gary Holdgrafer. I give my permission for my child to participate as a classroom peer. I have received a copy of the consent form.

_____	_____
Participant's printed name	Date
_____	_____
Parent/Guardian signature	Witness
_____	_____
Investigator's signature	Investigator's printed name

APPENDIX E

Participant's Informed Consent (Staff)

Title of Project: The social-communicative interactions of developmentally delayed preschool children in integrated settings.

Principal Investigator: Mary A. Reynolds, Graduate student
University of Alberta
492-5407

Supervisor: Gary Holdgrafer, Ph.D.
Professor, Department of Speech Pathology and Audiology
2-70 Corbett Hall
University of Alberta
Edmonton, Alberta
492-5990

Description of Study: The purpose of this research project is to describe how developmentally delayed preschool children communicate with their normally developing peers, developmentally delayed peers, and adults in two types of integrated settings. The subjects of this study will be enrolled both in a reverse integrated setting (the Early Education Program) and a mainstreamed setting (a daycare). The subjects will be videorecorded on two occasions in each setting during free play. A small wireless microphone will be worn by the subject and will be housed in a comfortable vest or fanny pack. Interactions during free play for a continuous forty minute period will be videorecorded. The investigator will remain at a reasonable distance away from the children, and will not interfere with or interact with the children during videotaping. The investigator's presence will be as unobtrusive as possible and will not affect the activities of the classroom. No intervention or other experimentation will be conducted.

Confidentiality of Information: As mentioned above, the sessions will be recorded on videotape. It is customary for research projects to ensure that privacy of research participants is maintained by restricting access to research materials that would identify participants. To ensure the privacy of the staff, video tapes will be identified by project ID number only. Only project researchers will have access to the videotapes. All tapes will be kept in a locked filing cabinet with the same restricted access. The videotapes will be used only for the research purposes stated above.

Your participation in this study is completely voluntary. If you agree to participate, you may withdraw from the study at any time without negative consequences. If you agree to participation, please return one copy of this form with your signature.

If you have any questions about this project, either before or after you give your consent, please do not hesitate to call Mary Reynolds at 492-5407. Thank you for considering this request.

I have read the description of the research project entitled "The social-communicative interactions of developmentally delayed preschool children in integrated settings" to be conducted by Mary A. Reynolds under the supervision of Dr. Gary Holdgrafer. I agree to participate. I have received a copy of the consent form.

Participant's printed name	Date
Parent/Guardian signature	Witness
Investigator's signature	Investigator's printed name